SEQUENCE LISTING

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<120> HUMANIZED IMMUNOGLOBULIN REACTIVE WITH B7-2 AND METHODS OF TREATMENT THEREWITH

<130> GI-5315

<140> 09/249,011
<141> 1999-02-12

<160> 20

<170> FastSEQ for Windows Version 3.0

<210> 1
<211> 405
<212> DNA
<213> Murine anti-B7-2 heavy chain

<220>
<221> CDS
<222> (1)...(405)
<223>

<400> 1

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atg ggt tgg aac tgt atc atc ttc ttt ctg gtt aca aca gct aca ggt       48
Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly
 1               5                  10                  15

gtg cac tcc cag gtc cag ctg cag cag tct ggg cct gag ctg gtg agg       96
Val His Ser Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Arg
            20                  25                  30
```

```
cct ggg gaa tca gtg aag att tcc tgc aag ggt tcc ggc tac aca ttc      144
Pro Gly Glu Ser Val Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe
         35                  40                  45

act gat tat gct ata cag tgg gtg aag cag agt cat gca aag agt cta      192
Thr Asp Tyr Ala Ile Gln Trp Val Lys Gln Ser His Ala Lys Ser Leu
     50                  55                  60

gag tgg att gga gtt att aat att tac tat gat aat aca aac tac aac      240
Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn
 65                  70                  75                  80

cag aag ttt aag ggc aag gcc aca atg act gta gac aaa tcc tcc agc      288
Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Ser Ser
                 85                  90                  95

aca gcc tat atg gaa ctt gcc aga ttg aca tct gag gat tct gcc atc      336
Thr Ala Tyr Met Glu Leu Ala Arg Leu Thr Ser Glu Asp Ser Ala Ile
            100                 105                 110

tat tac tgt gca aga gcg gcc tgg tat atg gac tac tgg ggt caa gga      384
Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly
        115                 120                 125

acc tca gtc acc gtc tcc tca                                         405
Thr Ser Val Thr Val Ser Ser
    130                 135
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<210> 2
<211> 135
<212> PRT
<213> Murine anti-B7-2 heavy chain

<400> 2

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Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly
 1               5                  10                  15
Val His Ser Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Arg
            20                  25                  30
Pro Gly Glu Ser Val Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe
        35                  40                  45
Thr Asp Tyr Ala Ile Gln Trp Val Lys Gln Ser His Ala Lys Ser Leu
    50                  55                  60
Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn
65                  70                  75                  80
Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Ser Ser
                85                  90                  95
Thr Ala Tyr Met Glu Leu Ala Arg Leu Thr Ser Glu Asp Ser Ala Ile
            100                 105                 110
Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly
        115                 120                 125
Thr Ser Val Thr Val Ser Ser
    130                 135
```

<210> 3
<211> 396
<212> DNA
<213> Murine anti-B7-2 light chain

<220>
<221> CDS
<222> (1)...(396)

<400> 3

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atg gat tca cag gcc cag gtt ctt ata ttg ctg ctg cta tgg gta tct       48
Met Asp Ser Gln Ala Gln Val Leu Ile Leu Leu Leu Leu Trp Val Ser
 1               5                  10                  15

ggt acc tgt ggg gac att gtg ctg tca cag tct cca tcc tcc ctg gct       96
Gly Thr Cys Gly Asp Ile Val Leu Ser Gln Ser Pro Ser Ser Leu Ala
            20                  25                  30

gtg tca gca gga gag aag gtc act atg agc tgc aaa tcc agt cag agt      144
Val Ser Ala Gly Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser
        35                  40                  45

ctg ctc aac agt aga acc cga gag aac tac ttg gct tgg tac cag cag      192
Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu Ala Trp Tyr Gln Gln
    50                  55                  60

aaa cca ggg cag tct cct aaa ctg ctg atc tac tgg gca tcc act agg      240
Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
65                  70                  75                  80

gaa tct ggg gtc cct gat cgc ttc aca ggc agt gga tct ggg aca gat      288
Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp
                85                  90                  95

ttc act ctc acc atc agc agt gtg cag gct gaa gac ctg gca gtt tat      336
Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr
            100                 105                 110

tac tgc acg caa tct tat aat ctt tac acg ttc gga ggg ggg acc aag      384
Tyr Cys Thr Gln Ser Tyr Asn Leu Tyr Thr Phe Gly Gly Gly Thr Lys
        115                 120                 125

ctg gaa ata aaa                                                     396
Leu Glu Ile Lys
    130
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<210> 4
<211> 132
<212> PRT
<213> Murine anti-B7-2 light chain

<400> 4

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Met Asp Ser Gln Ala Gln Val Leu Ile Leu Leu Leu Leu Trp Val Ser
 1               5                  10                  15
Gly Thr Cys Gly Asp Ile Val Leu Ser Gln Ser Pro Ser Ser Leu Ala
            20                  25                  30
Val Ser Ala Gly Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser
        35                  40                  45
Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu Ala Trp Tyr Gln Gln
    50                  55                  60
Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
65                  70                  75                  80
Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp
                85                  90                  95
Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr
            100                 105                 110
Tyr Cys Thr Gln Ser Tyr Asn Leu Tyr Thr Phe Gly Gly Gly Thr Lys
        115                 120                 125
Leu Glu Ile Lys
    130
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<210> 5
<211> 405
<212> DNA
<213> Humanized murine anti-human B7-2 heavy chain

<220>
<221> CDS
<222> (1)...(405)

<400> 5

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atg ggt tgg aac tgt atc atc ttc ttt ctg gtt acc aca gct aca ggt       48
Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly
 1               5                  10                  15

gtg cac tcc cag gtc cag ctg gtg cag tct ggg gct gag gtg aag aag       96
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
            20                  25                  30

cct ggg agc tca gtg aag gtg tcc tgc aaa gct tcc ggc tac aca ttc      144
Pro Gly Ser Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
        35                  40                  45

act gat tat gct ata cag tgg gtg aga cag gct cct gga cag ggc ctc      192
Thr Asp Tyr Ala Ile Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
    50                  55                  60

gag tgg att gga gtt att aat att tac tat gat aat aca aac tac aac      240
Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn
65                  70                  75                  80

cag aag ttt aag ggc aag gcc aca atg act gta gac aag tcg acg agc      288
Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Thr Ser
                85                  90                  95
```

```
aca gcc tat atg gaa ctt agt tct ttg aga tct gag gat acg gcc gtt      336
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
            100                 105                 110

tat tac tgt gca aga gcg gcc tgg tat atg gac tac tgg ggt caa ggt      384
Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly
        115                 120                 125

acc ctt gtc acc gtc tcc tca                                          405
Thr Leu Val Thr Val Ser Ser
    130                 135
```

<210> 6
<211> 135
<212> PRT
<213> Humanized murine anti-human B7-2 heavy chain

<400> 6

```
Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly
 1               5                  10                  15
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
            20                  25                  30
Pro Gly Ser Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
        35                  40                  45
Thr Asp Tyr Ala Ile Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
    50                  55                  60
Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn
65                  70                  75                  80
Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Thr Ser
                85                  90                  95
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
            100                 105                 110
Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly
        115                 120                 125
Thr Leu Val Thr Val Ser Ser
    130                 135
```

<210> 7
<211> 396
<212> DNA
<213> Humanized murine anti-human B7-2 light chain

<220>
<221> CDS
<222> (1)...(396)

<400> 7

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atg gat tca cag gcc cag gtt ctt ata ttg ctg ctg cta tgg gta tct       48
Met Asp Ser Gln Ala Gln Val Leu Ile Leu Leu Leu Leu Trp Val Ser
 1               5                  10                  15
```

```
ggc acc tgt ggg gac att gtg ctg aca cag tct cca gat tcc ctg gct       96
Gly Thr Cys Gly Asp Ile Val Leu Thr Gln Ser Pro Asp Ser Leu Ala
             20                  25                  30

gta agc tta gga gag agg gcc act att agc tgc aaa tcc agt cag agt      144
Val Ser Leu Gly Glu Arg Ala Thr Ile Ser Cys Lys Ser Ser Gln Ser
         35                  40                  45

ctg ctc aac agt aga acc cga gag aac tac ttg gct tgg tac cag cag      192
Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu Ala Trp Tyr Gln Gln
     50                  55                  60

aaa cca ggg cag cct cct aaa ctg ctg atc tac tgg gca tcc act agg      240
Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
 65                  70                  75                  80

gaa tct ggg gtc cct gat cgc ttc agt ggc agt gga tct ggg aca gat      288
Glu Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp
                 85                  90                  95

ttc act ctc acc atc agc agt ctg cag gct gaa gac gtg gca gtt tat      336
Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr
            100                 105                 110

tac tgc acg caa tct tat aat ctt tac acg ttc gga cag ggg acc aag      384
Tyr Cys Thr Gln Ser Tyr Asn Leu Tyr Thr Phe Gly Gln Gly Thr Lys
        115                 120                 125

gtg gaa ata aaa                                                     396
Val Glu Ile Lys
    130
```

<210> 8
<211> 132
<212> PRT
<213> Humanized murine anti-human B7-2 light chain

<400> 8

```
Met Asp Ser Gln Ala Gln Val Leu Ile Leu Leu Leu Leu Trp Val Ser
 1               5                  10                  15
Gly Thr Cys Gly Asp Ile Val Leu Thr Gln Ser Pro Asp Ser Leu Ala
            20                  25                  30
Val Ser Leu Gly Glu Arg Ala Thr Ile Ser Cys Lys Ser Ser Gln Ser
        35                  40                  45
Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu Ala Trp Tyr Gln Gln
    50                  55                  60
Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg
65                  70                  75                  80
Glu Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp
                85                  90                  95
Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr
            100                 105                 110
```

```
Tyr Cys Thr Gln Ser Tyr Asn Leu Tyr Thr Phe Gly Gln Gly Thr Lys
        115                 120                 125
Val Glu Ile Lys
    130
```

<210> 9
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> CDR1 of humanized murine anti-human B7-2 heavy chain

<221> CDS
<222> (1)...(15)

<400> 9

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gat tat gct ata cag                                                 15
Asp Tyr Ala Ile Gln
 1               5
```

<210> 10
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR1 of humanized murine anti-human B7-2 heavy chain

<400> 10

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Asp Tyr Ala Ile Gln
 1               5
```

<210> 11
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> CDR2 of humanized murine anti-human B7-2 heavy chain

<221> CDS
<222> (1)...(51)

<400> 11

```
gtt att aat att tac tat gat aat aca aac tac aac cag aag ttt aag      48
Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn Gln Lys Phe Lys
 1               5                  10                  15

ggc                                                                 51
Gly
```

<210> 12
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR2 of humanized murine anti-human B7-2 heavy chain

<400> 12
Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn Gln Lys Phe Lys
1 5 10 15
Gly

<210> 13
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> CDR3 of humanized murine anti-human B7-2 heavy chain

<221> CDS
<222> (1)...(21)

<400> 13
gcg gcc tgg tat atg gac tac 21
Ala Ala Trp Tyr Met Asp Tyr
1 5

<210> 14
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR3 of humanized murine anti-human B7-2 heavy chain

<400> 14
Ala Ala Trp Tyr Met Asp Tyr
1 5

<210> 15
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> CDR1 of humanized murine anti-human B7-2 light chain

<221> CDS
<222> (1)...(51)

<400> 15
aaa tcc agt cag agt ctg ctc aac agt aga acc cga gag aac tac ttg 48
Lys Ser Ser Gln Ser Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu
1 5 10 15

gct 51
Ala

<210> 16
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR1 of humanized murine anti-human B7-2 light chain

<400> 16
Lys Ser Ser Gln Ser Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu
1 5 10 15
Ala

<210> 17
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> CDR2 of humanized murine anti-human B7-2 light chain

<221> CDS
<222> (1)...(21)

<400> 17
tgg gca tcc act agg gaa tct 21
Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 18
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR2 of humanized murine anti-human B7-2 light chain

<400> 18
Trp Ala Ser Thr Arg Glu Ser
1 5

<210> 19
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> CDR3 of humanized murine anti-human B7-2 light chain

<221> CDS
<222> (1)...(24)

<400> 19
acg caa tct tat aat ctt tac acg 24
Thr Gln Ser Tyr Asn Leu Tyr Thr
1 5

<210> 20
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR3 of humanized murine anti-human B7-2 light chain

<400> 20
Thr Gln Ser Tyr Asn Leu Tyr Thr
1 5